



11. ECOSYSTEM MANAGEMENT

“Sustaining our Nation’s military training and testing lands through ecosystem management is among the most important DOD environmental goals”¹⁰

Fort Greely’s natural resources program has traditionally been based on multiple-use management philosophies. However, military training is the primary land use. This philosophy will continue through 1998-2002 with one important addition. Maintaining functional ecosystems is now the goal of Fort Greely land and natural resources management programs. “Realistic training lands” are often quoted as essential needs by military trainers. This translates into functional ecosystems that can be sustained indefinitely.

Ecosystems that lose their functionality become degraded and loss of realism for training follows. This is contrary to the commitment to sustain military

training lands (or “no net loss” in the capability of training lands to support the military mission). Thus, the future of Fort Greely and its military mission, as well as the community that depends upon the installation, relies on maintaining functional ecosystems.

USARAK will conduct ecosystem management by using the principles of landscape ecology. Multiple-use will occur across the landscape, but not every use may occur at every location. Adaptive management will be used to assess and evaluate results of management actions and will recycle the information back into decision making for further actions.

¹⁰Sherri W. Goodman, Deputy Under Secretary of Defense (Environmental Security)

USARAK will manage for biodiversity on Fort Greely by maintaining total numbers of species, managing for varied habitats, and maintaining and restoring natural processes to the landscape. Although ecosystem management is not mandated by law, its basic concepts have strong legal implications, especially as it relates to the Endangered Species Act, Sikes Act, and other laws, such as Clean Water Act, and NEPA. Ecosystem management is a philosophy that will help protect biodiversity and maintain fully functional ecosystems.

DOD has endorsed ecosystem management, stating the DOD goal with regard to ecosystem management is *“To ensure that military lands support present and future training and testing requirements while preserving, improving, and enhancing ecosystem integrity. Over the long term, that approach shall maintain and improve the sustainability and biological diversity of terrestrial and aquatic (including marine) ecosystems while supporting sustainable economies, human use, and the environment required for realistic military training operations.”*¹¹

Principles and guidelines for achieving this goal are listed below:

- ▶ Develop a vision of ecosystem health
- ▶ Develop priorities and reconcile conflicts
- ▶ Maintain and improve the sustainability and native diversity of ecosystems
- ▶ Administer with consideration of ecological units and time frames
- ▶ Support sustainable human activities
- ▶ Develop coordinated approaches to work toward ecosystem health
- ▶ Rely on the best science and data available
- ▶ Use benchmarks to monitor and evaluate outcomes
- ▶ Use adaptive management
- ▶ Implement through installation plans and programs

USARAK will use ecosystem management concepts to guide its natural resource programs on Fort Greely during the next five years and beyond. This management philosophy enables the installation to conduct military training while protecting natural resources upon which the quality of training ultimately depends. Concurrently, ecosystem management helps ensure compliance with environmental laws and production of renewable natural resources products.

Biodiversity conservation is an international commitment, and ecosystem management is a recognized means to achieve this commitment. There is debate over specific tactics needed to accomplish this; however, there are broad concepts that appear to be well accepted. This INRMP encompasses these broad concepts and attempts to accomplish them through specific projects listed in the below section.

This chapter has a variety of purposes including:

- ▶ Describe biodiversity and ecosystem management with regard to implementation by the Department of the Army and some impacts on this INRMP
- ▶ Describe land management units and how they relate to ecosystem management
- ▶ Describe how USARAK will conduct ecosystem management at Fort Greely through ecological management units

11-1 Biodiversity Conservation

Biological diversity (biodiversity) refers to the variety and variability among living organisms and the environment in which they occur. Biodiversity has meaning at various levels including ecosystem diversity, species diversity, and genetic diversity (The Keystone Center, 1996).

DOD is developing a policy for biodiversity management that will use the INRMP process as the implementation tool. A first step in this process was the preparation of *A Department of Defense (DOD) Biodiversity Management Strategy* (The Keystone Center, 1996). This draft report identifies five reasons to conserve biodiversity on military lands:

¹¹Department of Defense Instruction Number 4715.3, *Environmental Conservation Program*, May 3, 1996, specifically Enclosure 6.

- (1) To sustain natural landscapes required for the training and testing necessary to maintain military readiness
- (2) To provide the greatest return on DOD's investment to preserve and protect the environment
- (3) To expedite the compliance process and help avoid conflicts
- (4) To engender public support for the military mission
- (5) To improve the quality of life for military personnel

The Keystone Center report (1996) notes that the challenge is *"to manage for biodiversity in a way that supports the military mission."* This strategy identifies the INRMP as the primary vehicle to implement biodiversity protection on military installations. The model process developed within the strategy includes the following principles:

- ▶ Support the military mission
- ▶ Use joint planning between natural resources managers and military operations personnel
- ▶ Integrate biodiversity conservation into INRMP, ITAM, and other planning protocols
- ▶ Involve internal and external stakeholders up front
- ▶ Emphasize the regional (ecosystem) context
- ▶ Use adaptive management
- ▶ Involve scientists and use the best science available
- ▶ Concentrate on results

This INRMP uses biological conservation approaches in a variety of ways, including monitoring and inventory, which are critical to adaptive management (sections 12-2 and 12-3); protection for sensitive areas with special protection for rare species and communities (Section 13-4); forest management to conserve species richness (Section 14-2); use of native species and reduced landscaping (Section 14-6); wetlands management (Section 14-4); and restrictions on military and other outdoor

activities that negatively affect biodiversity (Sections 13-3 and 13-4). This INRMP may need to be updated when the Defense (and Army) policies on biodiversity are completed.

11-2 Land Management Units

General land-use categories are impact areas, maneuver training and urban areas. Other land management units include fire management, game and fisheries management, and ecosystem management.

11-2a Impact Areas

Chapter 5, of USARAK Regulation 350-2, describes impact areas. Fort Greely's major impact areas are: Oklahoma Impact Area, Delta Creek Impact Area, Lakes Impact Area, Mississippi Impact Area, Washington Impact Area, and Allen Army Controlled Fire Area (Figure 4-1b). Limitations on use of these impact areas are discussed in Section 3-2. In addition, there are temporary impact areas associated with small arms ranges. Impact areas on Fort Greely cover 156,804 acres. Depending on the type of ordnance used, they may or may not be available for maneuver training.

U.S. Air Force relies heavily on the restricted airspace R2202 A, B and C for use of the Oklahoma/Delta Creek Impact Area for bombing and gunnery and for testing various weapon systems. Observation Points 26 - 30 in TA 85 are used primarily by the USAF in conjunction with this training/testing.

11-2b Training Areas

Maneuver training areas encompass approximately 467,381 acres. These areas provide a varied terrain for training. The vegetation also varies widely and includes most types common to interior Alaska, from heavily forested riverine areas to alpine tundra. There is an additional 25,234 acres in the outlying areas of the Gerstle River Test Site, Black Rapids Training Site, and Whistler Creek Rock-Climbing Area. Primary use of Gerstle River was turned over to NWTC in the 1980s for training. The area includes a biathlon course and a Forward Arming and Refueling Point for aviation units. Black Rapids and Whistler Creek are small parcels used for specific training, such as cold regions and mountain glacier training.

Fort Greely is divided into 73 numbered training areas. Of these, 6 are ranges and 5 are drop zones. Training areas 1 through 34 are east of the Richardson Highway, training areas 40 through 63 are between the Richardson Highway and the Delta River, and 71 through 86 are west of the Delta River. Those west of the Delta River are accessible by air year round, and by ice bridge during the winter (Figure 4-1b).

The training areas between Jarvis Creek and the Delta River are used for brigade-level, force on force training exercises. This area also contains the Donnelly Drop Zone (DZ), which includes the Donnelly Assault Airfield, and the Fox and Bear DZs, which are used extensively for personnel and equipment drops and assault landings. Training Areas (TAs) 19 - 22 (the Maneuver Box) are used for maneuver, bivouac and foot training. TAs 49 - 53 contain a series of observation points overlooking the Delta River and impact areas, which are used primarily for mortar firing. These TAs are also used as bivouac sites. TAs 57 and 58 contain firing points used for artillery firing and bivouac sites.

The Allen Army Airfield area is used during large exercises as a supply point and staging area. Buffalo Drop Zone is used for equipment drops, and nearby TA 1 is often used by support battalions for bivouacking.

There are a series of small arms ranges in the northern section of the impact area between the Richardson Highway and the Delta River.

The Simpsonville CALFEX site, built in 1997 on the eastern edge of TA 77, has been used for Northern Edge, the annual joint readiness exercise. Although access is somewhat limited, it is expected to be used regularly during the winter for brigade-level and larger exercises.

The Cold Regions Test Center (CRTC) uses most of the area east of the Delta River (TAs 1 - 63) for equipment testing. It is also the primary user of Bolio Lake Test Site, TA 51 (Mississippi Test Site), and the Texas and Washington Ranges in TAs 60 and 63 for weapons testing. The Northern Warfare Training Center (NWTC) trains Arctic and mountaineering units under winter and summer conditions, on many of the training areas.

11-2c Urban Areas

Fort Greely's cantonment area (Figure 4-1a) is defined (for purposes of this INRMP) as lands developed with buildings and facilities and their associated natural lands. Fort Greely has 858 acres of urban area. They include the built-up portion of the Main Post, Allen Army Airfield, the ammunition supply point, and some recreational areas. Most of these are not used for training exercises and are off-limits to tactical vehicles. Some grounds are intensively maintained, but many areas are unimproved and may provide excellent wildlife habitat.

11-2d Fire Management Areas

An interagency planning team under a provision of the Alaska National Interest Lands Conservation Act (ANILCA, Section 1201j) developed the Alaska Interagency Fire Management Plan. It provides an opportunity for land managers within the planning area to accomplish their land use objectives through cooperative fire management. The area covered by the plan includes Fort Greely. However, when the plan was prepared, there were no representatives from DOD in the planning group, so many Defense lands were unplanned. In recent years, Fort Greely and Fort Wainwright have been added to this planning effort.

The Fire Management Plan established four categories: Critical Protection, Full Protection, Modified Action, and Limited Action. Below are summaries of each category (Anonymous, 1982).

Critical Protection - Areas receive maximum detection coverage and are highest priorities for attack response. Immediate and aggressive initial attack is provided. Land owners/managers are notified of the situation as soon as possible. Critical protection areas receive priority over adjacent lands and resources in the event of escaped fires.

Full Protection - Areas receive maximum detection coverage and receive immediate and aggressive initial attack responses. If the initial attack response is successful or the fire is otherwise controlled within the first burning period, special agency notification is not required. When fires escape initial attack and require additional suppression, affected land owners/managers are notified to develop further fire strategy.

Modified Action - This option provides a level of protection between Full and Limited. The intent is to provide a relatively high degree of protection during periods of increased fire danger, but a lower level of protection when risks of fires are diminished. Modified protection areas receive maximum detection coverage. Initial attack action, or non-action, is based on the potential for resource damage, constraints on the affected land (dudded impact areas), and/or discussions with the land owner/manager. If initial attack is not used, the land owner/manager is apprised of the situation daily. Unmanned fires are monitored.

Limited Action - This option recognizes areas where natural fire is important or the values at risk do not warrant the expense of suppression. Limited protection areas receive routine detection effort. Attack response is based on needs to keep the fire within Limited protection areas and to protect individual Critical protection sites within Limited protection areas. Land owners/managers are immediately notified of fires detected. Unmanned fires are monitored.

There are two other special categories on Army lands in Alaska. Unplanned areas are those with no official designation but are treated as Full Protection areas until such time as they are officially designated. Restricted or Hot Zone is a category used for impact areas and other places where no on-the-ground fire fighting occurs. Fires can still be suppressed in Restricted Areas, but suppression is through backburning or aerial-dropped retardant.

The Fort Greely Resource Management Plan (BLM and US Army, 1994) designated Sullivan Roadhouse and specific Air Force equipment sites as Critical fire suppression sites. When the Sullivan Roadhouse was removed, this site was changed to Limited fire protection.

Areas east of the Delta River (excluding four square miles of uplands east of Jarvis Creek), north of impact areas, and north of a trail that extends west of Delta Creek from near the mouth of One-Hundred-Mile Creek receive Modified fire suppression. The remainder of the withdrawal area receives Limited fire suppression. The Interagency Fire Management Plan and concurrence between USARAK and BLM can implement future changes in these designations. BLM, in conjunction with USARAK, will draft a

Fire Management Plan to reduce the fire hazard for areas that require special attention on the Fort Greely withdrawal.

These fire protection designations were updated by the BLM in 1998. The area east of the Richardson Highway and west of the Thirty-Three Mile Loop Road was upgraded to *Full Protection* until a pre-suppression plan could be developed. Figure 11-2d shows fire management designations on Fort Greely.

11-2e Game and Fisheries Management Units

Fort Greely, west of the Delta River, is within ADF&G's Game Management Unit 20A (Figure 11-2e). Lands lying east of the Delta River, including the East Training Area, are included in ADF&G's Game Management Unit 20D. ADF&G-imposed fishing regulations for Fort Greely are within ADF&G Tanana River Drainage regulations.

11-2f Ecological Management Units

Ecological management units on Fort Greely have been created to integrate ecosystem management with military and other land uses. Ecological management units are based on the Ecological Land Classification surveys for Fort Greely. (Sections 8-1a and 12-2d(1)). Ecological management sub-units follow closely with training area boundaries to allow more effective management, since the primary land use, military training, schedules use by training areas. West of the Delta River covers one ecological management unit, the Delta River bottoms are another ecological management unit, and east of the Delta River is the third ecological management unit (Figure 11-2f).

11-3 Fort Greely as Part of a Regional Ecosystem Management Effort

11-3a Regional Bird Partnerships

The USFWS plans to conduct a habitat assessment of wetlands in the Fairbanks area, primarily to categorize bird usage of different wetland classifications. The Waterways Experiment Station (WES) wetland delineation on Fort Greely may be useful to this project. No additional wetland inventories are planned for the next five years.

11-3b Regional Habitat Restoration Goals

ADF&G uses prescribed burning for habitat restoration (reducing the amount of black spruce) on state lands west of Wood River (approximately 90 miles west of Fort Greely). This burning is facilitated through the *Western Tanana Flats Prescribed Burning Plan* (State of Alaska, 1995). This plan has three goals and three objectives.

GOALS:

- ▶ Restore age diversity among aging vegetative types, thereby maintaining or enhancing wildlife habitat values for species needing early to mid-successional stages
- ▶ Maintain or enhance wildlife use opportunities in an area close to human population centers in interior Alaska
- ▶ Reduce the risk of unmanageable, expensive, and potentially dangerous wildland fires that could threaten adjacent communities and protected timber resources

OBJECTIVES:

- ▶ Burn 50%-70% of each of the three core areas
- ▶ Kill at least 50% of the existing black spruce with a burn of varying intensities to allow the shrub understory component to proliferate by sprouting
- ▶ Kill at least 50% of existing aboveground stems of birch, aspen, poplar, and willow to promote root or basal sprouting

This plan includes discussions of preburn considerations, public notice of planned burns, burning prescriptions, ignition methods, smoke management considerations, holding plan, contingency plan for fire escape, communications and coordination, and monitoring and evaluation. This plan could be used as the basis for a Fort Greely prescribed burning plan.

11-3c Fortymile Caribou Herd Regional Management

The *Fortymile Caribou Herd Management Plan* (Anonymous, 1995b) was developed to assist in re-

covery of the Fortymile caribou herd, primarily for three reasons:

- ▶ Restore ecosystem biodiversity
- ▶ Provide opportunities for people to once again observe thousands of caribou crossing the Taylor, Steese, and Top of the World highways
- ▶ Restore the traditional subsistence resource of this area

Proposals presented in the plan to achieve herd recovery include maintaining habitat quality, limiting effects of harvest on the herd, decreasing predation, monitoring plan effectiveness, increasing public awareness of the herd, and providing future planning processes. USARAK will provide support for this plan during 1998-2002, consistent with available resources and recognizing that the installation is only on the fringe of the herd's range.

11-4 Ecosystem Management on Fort Greely

Ecosystem management on Fort Greely will be accomplished on a landscape scale using the principles of landscape ecology. Multiple-use concepts will be applied across the landscape. While all land uses will be considered across the landscape, not every use may be compatible on each acre. GIS will be used to identify compatible land uses, enabling USARAK to implement ecosystem management. Each ecological management unit will have a management prescription that will define compatible uses, prioritize uses, access and delineate ecosystem management objectives. Prioritizing land uses for each management unit guides conflict resolution. Ecological management units on Fort Greely are shown in Figure 11-2f.

Ecological management units follow roughly the boundaries of the Ecodistricts cited in the ecological land classification for Fort Greely (ABR, 1998). Ecological management sub-units generally follow training area boundaries, because training area boundaries determine use and access.

Each ecological management unit will be managed under one or more management levels described below:

Intensive Management: Intensive management areas are sub-units that are highly populated, receive high levels of use and are easily accessible by road. All forms of surveys, monitoring, and active management of land, forest, fish and wildlife, and recreation resources may be conducted.

Full Management: Full management areas are sub-units that receive use and are accessible by road. All forms of surveys, monitoring, and active management of land, forest, fish and wildlife, and recreation resources may be conducted with exception of intensive urban area management options.

Modified Management: Modified management areas are sub-units that receive use, are not accessible by road, but are open to public access. All forms of surveys, monitoring, and active management of land, forest, fish and wildlife, and recreation resources may be conducted, but may not be practical.

Limited Management: Limited management areas are sub-units where public access is prohibited. Methods of ecosystem management will concentrate on remote monitoring and passive means of conducting management.

The following sections discuss each ecological management unit in terms of description and management objectives. Following each ecological management unit are descriptions of ecological sub-units in terms of location, description, public access policies, compatible uses, management priorities (further described in chapters 12-17), and summaries of management prescriptions (further described in chapters 12-17).

11-4a Greely West Ecological Management Unit

Description. Greely West ecological management unit covers all of Fort Greely west of the Delta River. The Greely West unit consists of flat, lowland wetlands in the north and portions of the Alaska Range in the south.

Ecosystem Management Objectives.

Manage Delta Creek/Little Delta sub-unit as Modified management area.

Manage Lakes Impact Area, Oklahoma/Delta Creek Impact Area, and Alaska Range sub-units as Limited management areas.

11-4a(1) Delta Creek/Little Delta Sub-unit

Location. The Delta Creek/Little Delta sub-unit is located in the northern and northwestern portions of Fort Greely, west of the Delta River. This sub-unit consists of the Little Delta and the Delta Creek Training Areas (sub-training areas 81, 82, 83, 84, 85 and 86).

Description. The Delta Creek/Little Delta River sub-unit is 154,323 acres and is bordered on the west by the Little Delta River and bisected by Delta Creek. Flat lowlands, to rolling hills, to steep hills leading up to Dinosaur Ridge characterize the area. Lowlands are covered primarily by wetlands, and uplands are generally treeless. Training area 82 is the closest part of Fort Greely to Fort Wainwright's Tanana Flats. This sub-unit contains Delta Creek Assault Landing Strip, which is in a good location for large joint exercises. It is accessible from the ground by the winter trail. It is in an abandoned streambed, and has a good gravel base. TA 85 and TA 86 are accessible by the Delta River ice bridge and the winter trail. The winter trail is a route through TAs 85 and 86 to access OPs 26 - 30, the Delta Creek Assault Strip, and the Simpsonville CALFEX range in TA 77.

Public Access. Public access is allowed for recreation, subject to safety restrictions and military security, when access does not impair the military mission, as determined by the installation commander.

Compatible Uses. Training Areas 81, 82 and 83 are suitable for winter exercises only. TA 81 is suitable for foot use. TAs 85 and 86 have a network of winter trails and are suitable for many winter exercise elements, such as maneuver, bivouac, and foot use. They are currently used during large exercises due to the presence of the CALFEX. For summer or break-up, this area is recommended for foot use only, because of a lack of accessibility and the extensive wetlands. Observation Points 26 - 30 are located in TA 85 and are used primarily by USAF. The Delta Creek Assault Landing Strip is suitable for airborne assault and assault in support of combined arms exercises.

Other compatible uses include natural resource management, habitat improvement, mineral or vegetative resource extraction, hunting, fishing, trapping, bird watching, hiking, skiing, dog sledding, and ORV use. Activities that are not compatible with the Delta Creek/Little Delta sub-unit include airboats, digging in wetlands without a permit, and any permanent non-military structures, easements or leases.

Ecosystem Management Priorities.

1. Complete ecological land classification and evaluation
2. Complete wetlands survey
3. Complete floristic survey
4. Survey for threatened and endangered species
5. Conduct soil survey
6. Survey nesting raptors
7. Survey neotropical migratory birds
8. Survey small mammals
9. Conduct archaeological survey
10. Conduct water quality survey
11. Conduct Section 404 consultation
12. Manage wetlands vegetation
13. Enforce hunting, trapping and fishing laws and regulations
14. Prevent and suppress undesirable wildfires
15. Inventory the forest ecosystem
16. Manage the forest ecosystem
17. Monitor military exercises
18. Monitor fish and wildlife
19. Conduct LCTA monitoring
20. Conduct LRAM
21. Manage special interest areas
22. Implement natural and cultural resources education and awareness programs
23. Implement hunting, fishing and trapping awareness programs
24. Manage recreational use and impacts
25. Monitor recreational impacts
26. Monitor trespass cabin status

Management Prescription. USARAK will conduct or complete planning-level soil surveys, wetlands surveys, floristic surveys, ecological land classification, permafrost distribution and stability, habitat use, forest ecosystem inventory, exotic species surveys, threatened and endangered species surveys, nesting raptor surveys, neotropical landbird surveys, small mammals surveys, baseline water quality database surveys, archaeological planning-level surveys, and cabin surveys. USARAK will monitor moose, bison, small game, neotropical migratory birds, wolves and the Fortymile caribou herd if the herd comes onto Fort Greely, using harvest data collection. USARAK will conduct LCTA and water quality monitoring, and will monitor military exercise, trespass structure, and recreational impacts.

The fire protection category for the Delta Creek/Little Delta sub-unit is Full. USARAK will manage the forest ecosystem by conducting timber removal for military mission support and forest disease/insect prevention. USARAK will conduct habitat management by prescribed burning for multiple species. Fish and wildlife population management will include hunting, fishing, and trapping management, and fish stocking.

USARAK will conduct Section 404 consultation for military exercises and obtain a general five-year permit to allow training in low-function wetlands. USARAK will manage wetland and repair wetland damage when necessary as mitigation for the general permit.

USARAK will conduct natural and cultural resources education and awareness, and hunting, trapping, and fishing awareness programs. USARAK will conduct hunting, trapping, fishing, and trespass enforcement. It will manage recreation by controlling access, managing backpacking, hiking, and ORV areas, and enhancing fishing opportunities.

11-4a(2) Alaska Range Sub-unit

Location. The Alaska Range sub-unit is located west of the Delta River on the southern portion of Fort Greely. This sub-unit consists of the East Fork, Molybdenum, Trident and Minnesota Training Areas (sub-training areas 71, 72, 73, 74, 75, 76, 77, 78, 79 and 80).

Description. The Alaska Range sub-unit is 229,091 acres, the largest sub-unit on Fort Greely. TA 71 consists of bluffs and small hills leading down to the Delta River on its eastern boundary. It has numerous streams and lakes, and probably a great portion of this would be classified as wetlands. TA 72 rises sharply from the Delta Creek Valley in the west, becoming hilly to the east. The end of Trident Glacier lies in the southwest corner of TA 72. It has numerous lakes and streams. The wetland status is unknown. TA 73 is hilly, and has numerous lakes and streams, especially in the western portion, which is probably categorized as wetland. TA 74 is on the edge of the foothills of the Alaska Range. The edge of Trident Glacier forms the border in one corner. There are several lakes, streams, and wetland areas. TA 75 contains Molybdenum Ridge (elevations to nearly 6000 feet) and has numerous streams and lakes in the lowlands. TA 76 goes from a low, flat area in the north to a large hill in the south and has numerous streams. TA 77 is primarily the south-facing slope of Dinosaur Ridge and contains a few lakes and numerous streams. The new CALFEX range is located on the eastern edge on a bank overlooking Delta Creek and the Delta Creek Impact Area. A winter trail provides ground access from the northeast. A large relatively flat area of low vegetation is used as a drop zone (Warrior DZ) along the south. TA 78 goes from a low, flat area in the north to two large hills in the south. It has numerous lakes and streams, and would probably be categorized as wetland north of grid line 84. TA 79 has foothills of the Alaska Range that are steep, and elevations up to 5300 feet. TA 80 goes from foothills of the Alaska Range at the south to flats at the confluence of the West and East Forks of Little Delta River. The northern point is the location of several cabins as well as a small (5-acre) PTTA private in-holding.

Public Access. Public access is allowed for recreation, subject to safety restrictions and military security, when access does not impair the military mission, as determined by the installation commander.

Compatible Uses. The Alaska Range sub-unit has very few trails and is not used extensively, except for the CALFEX Range in TA 77. This sub-unit is suitable for foot training year-round and maneuver and bivouac training during the winter months. It is also suitable for specialized mountaineering and other winter training.

Other compatible uses include natural resource management, habitat improvement, mineral or vegetative resource extraction, hunting, fishing, trapping, birdwatching, hiking, skiing, dog sledding, and ORV use. Activities that are not compatible with the Alaska Range sub-unit, include airboats, digging in wetlands without a permit, and any permanent non-military structures, easements or leases.

Ecosystem Management Priorities.

1. Complete ecological land classification and evaluation
2. Complete wetlands survey
3. Complete floristic survey
4. Conduct soil survey
5. Complete survey for threatened and endangered species
6. Survey for nesting raptors
7. Survey neotropical migratory birds
8. Survey small mammals
9. Conduct archaeological survey
10. Conduct Section 404 consultation
11. Enforce hunting, trapping, and fishing laws and regulations
12. Update trespass cabin inventory
13. Monitor fish and wildlife
14. Conduct LCTA monitoring
15. Monitor military exercises
16. Manage special interest areas
17. Manage wetlands vegetation
18. Inventory the forest ecosystem
19. Manage the forest ecosystem
20. Manage wildlife populations
21. Conduct water quality surveys
22. Monitor recreational impacts
23. Prevent and suppress undesirable wildfires

Management Prescription. USARAK will conduct or complete planning-level soil surveys, wetlands surveys, floristic surveys, ecological land classification, permafrost distribution and stability, habitat use, forest ecosystem inventory, exotic species surveys, threatened and endangered species surveys, nesting raptor surveys, neotropical landbird surveys, small mammals surveys, baseline water quality database surveys, archaeological planning-level surveys, and cabin surveys. USARAK will monitor moose, bison, small game, neotropical migratory birds, and wolves using harvest data collection.

USARAK will conduct LCTA monitoring, water quality monitoring, and will monitor military exercise impacts, trespass cabins and recreational impacts.

The fire protection category for the Alaska Range sub-unit is Full and Limited. The Dall sheep habitat (Figure 8-2a(3)), and moist tundra areas will be managed as special interest areas. USARAK will manage the forest ecosystem by conducting timber removal for military mission support, and forest disease/insect prevention. USARAK will conduct habitat management by prescribed burning for multiple species. Fish and wildlife population management will include hunting, fishing, trapping; BASH management; and fish stocking.

USARAK will conduct Section 404 consultation for military exercises and obtain a general five-year permit to allow training in low-function wetlands. USARAK will manage wetlands by mitigating damage from training and repairing damage.

USARAK will conduct natural and cultural resources education, and hunting, trapping, and fishing awareness programs. USARAK will conduct hunting, trapping, fishing, and trespass enforcement, and manage recreation by controlling access, managing backpacking and hiking areas, managing ORV areas, and enhancing fishing opportunities

11-4a(3) Oklahoma/Delta Creek Impact Areas Sub-unit

Location. The Oklahoma/Delta Creek Impact Areas sub-unit is located in the central portion of Fort Greely west of the Delta River. This sub-unit consists of Oklahoma Impact Area (98) and Delta Creek Impact Area (99).

Description. The Oklahoma/Delta Creek Impact Area sub-unit has 50,990 acres of level to rolling terrain, covered by wetlands and bisected by numerous streams. Delta Creek flows along the western edge of this sub-unit. The impact area is used for aerial gunnery, surface-to-air, and direct and indirect firing and is the ground and associated airspace within the training complex used to contain fired or launched ammunition and explosives and resulting fragments, debris, and components from various weapons systems.

Public Access. Access into the Oklahoma/Delta Creek Impact Area sub-unit is prohibited. Military personnel may request permission to enter this sub-unit, and if permission is granted, personnel must be accompanied by Explosive Ordinance Disposal (EOD) personnel. Oklahoma/Delta Creek Impact Area has been designated as restricted airspace by the Federal Aviation Administration and is closed to all aircraft up to an altitude of 20,000 feet above mean sea level during periods of scheduled firing.

Compatible Uses. The Oklahoma/Delta Creek Impact Area sub-unit is suitable for indirect fire weapon training and aerial gunnery exercises. The area is impacted by small arms and dud-producing munitions. The Air Force uses Oklahoma/Delta Creek Impact Areas for bombing. This sub-unit has been classified as a high hazard impact area. Other compatible uses include remote monitoring of natural resources and military impacts, and prescribed burning to reduce fire hazards and improve habitat.

Military training and travel are prohibited in Oklahoma/Delta Creek Impact Area. There is hazard of unexploded ordnance in this area. Commanders will ensure that safety personnel maintain surveillance of the area and have the officer-in-charge suspend firing immediately at the approach of an aircraft. Other activities that are not compatible with this sub-unit include any on-the-ground natural resources management, digging in wetlands without a permit from the Army Corps of Engineers, mineral extraction, hunting, fishing, trapping, bird watching, ORVs of any kind, dog sledding, airboats, camping, new construction, easements, and leases.

Ecosystem Management Priorities.

1. Complete ecological land classification and evaluation
2. Complete wetlands survey
3. Complete floristic survey
4. Conduct soil survey
5. Conduct water quality surveys
6. Complete survey for threatened and endangered species
7. Survey for nesting raptors

8. Survey neotropical migratory birds
9. Survey small mammals
10. Conduct archaeological survey
11. Inventory the forest ecosystem
12. Manage wetland vegetation
13. Monitor fish and wildlife
14. Monitor military impacts
15. Update trespass cabin inventory
16. Conduct Section 404 consultation
17. Enforce hunting, trapping, and fishing laws and regulations
18. Enforce trespass

Management Prescription. USARAK will conduct or complete planning-level soil surveys, wetland surveys, floristic surveys, ecological land classification, permafrost distribution and stability, habitat use, forest ecosystem inventory, exotic species surveys, threatened and endangered species surveys, nesting raptor surveys, neotropical landbird surveys, small mammal surveys, baseline water quality database surveys, and archaeological planning-level surveys. USARAK will monitor moose, bison, small game, and wolves using harvest data collection. USARAK will monitor impacts from military exercise, and trespass structures.

The fire protection category for Oklahoma/Delta Creek Impact Area sub-unit is limited. USARAK will conduct habitat management by prescribed burning for multiple species. The Delta caribou calving and post-calving areas will be managed as special interest areas. USARAK will conduct Section 404 consultation for military exercises and obtain a general five-year permit to allow training in low-function wetlands. USARAK will also conduct hunting, trapping, fishing, and trespass enforcement, and manage recreation by controlling access.

11-4a(4) Lakes Impact Areas Sub-unit

Location. Lakes Impact Areas sub-unit is located just west of the Delta River on Fort Greely and shares boundaries with Oklahoma, Mississippi, and Washington Impact Areas. This sub-unit consists of sub-impact areas: Michigan Lakes (93), Oregon Lakes (94), Nevada Lakes (95), Kansas Lakes (96),

Arizona Lakes (98), and the portion of the Allen Army Controlled Fire Area that is west of the Delta River.

Description. The Lakes Impact Areas sub-unit contains 78,435 acres of rolling terrain with numerous lakes throughout. This sub-unit is bordered on the west by One-Hundred-Mile Creek and the Delta River on the east. These impact areas are primarily used for live fire exercises and act as a buffer to Oklahoma Impact Area to the west and Mississippi and Washington Impact Areas to the east. This sub-unit can also be used for aerial gunnery, surface-to-air, and direct and indirect firing. Impact areas are the ground and associated airspace within the training complex and are used to contain fired or launched ammunition and explosives and resulting fragments, debris, and components from various weapons systems

Public Access. Access into the Allen Army Air Controlled Fire Area is prohibited. The Michigan, Nevada, Kansas, and Arizona Lakes Impact Areas can be closed temporarily during military activities. Military personnel may request permission to enter this sub-unit, and if permission is granted, EOD personnel must accompany them. The Lakes Impact Area has been designated as restricted airspace by the Federal Aviation Administration and is closed to all aircraft up to an altitude of 20,000 feet above mean sea level during periods of scheduled firing.

Compatible Uses. The Lakes Impact Area sub-unit is suitable for direct fire weapon training and aerial gunnery exercises. The area is impacted by small arms and may be impacted by dud-producing munitions. This sub-unit has been classified as a dedicated impact area. Other compatible uses include live fire maneuver training, remote monitoring of natural resources and military impacts, and prescribed burning to reduce fire hazards and improve habitat.

Other activities not compatible with this sub-unit include most on-the-ground natural resources management, digging in wetlands without a permit from the Army Corps of Engineers, mineral or vegetative extraction, hunting, fishing, trapping, bird watching, ORVs of any kind, dog sledding, airboats, camping, new construction, easements, and leases.

Ecosystem Management Priorities.

1. Complete ecological land classification and evaluation
2. Complete wetlands survey
3. Complete floristic survey
4. Conduct soil survey
5. Complete survey for threatened and endangered species
6. Survey for nesting raptors
7. Survey neotropical migratory birds
8. Survey small mammals
9. Conduct archaeological survey
10. Inventory the forest ecosystem
11. Monitor fish and wildlife
12. Conduct water quality surveys
13. Manage wetland vegetation
14. Monitor military impacts
15. Monitor trespass cabin status
16. Conduct Section 404 consultation
17. Enforce hunting, trapping, and fishing laws and regulations
18. Enforce trespass

Management Prescription. USARAK will conduct or complete planning-level soil surveys, wetlands surveys, floristic surveys, ecological land classification, permafrost distribution and stability, habitat use, forest ecosystem inventory, exotic species surveys, threatened and endangered species surveys, nesting raptor surveys, neotropical landbird surveys, small mammals surveys, baseline water quality database surveys, and archaeological planning-level surveys. USARAK will monitor moose, bison, small game, and wolves using harvest data collection. USARAK will monitor impacts from military exercise, and trespass structures.

The fire protection category for the Lakes Impact Area sub-unit is Limited. USARAK will conduct habitat management by prescribed burning for multiple species. USARAK will conduct Section 404 consultation for military exercises and obtain a general five-year permit to allow training in low-function wetlands. USARAK will also conduct hunting,

trapping, fishing, and trespass enforcement, and manage recreation by controlling access.

11-4b Delta River Ecological Management Unit

Description. The Delta River ecological management unit contains most of the Delta flood plain ecodistrict on Fort Greely. The Delta River unit contains numerous braided channels and riverbed deposits. Very little to no vegetation occurs in this unit.

Ecosystem Management Objectives. Manage Allen Army Controlled Fire Area as a Limited management area. Manage Mississippi/Washington Impact Area sub-unit as Limited management areas. Manage the Delta River South sub-unit as a Modified management area.

11-4b(1) Allen Army Controlled Fire Area Sub-unit

Location. The Allen Army Controlled Fire Area sub-unit is located on the northern portion of the Delta River on Fort Greely. This sub-unit consists of portions of sub-training area 90.

Description. The Allen Army Controlled Fire Area sub-unit is 3562 acres of the streambed of the Delta River. This sub-unit is bisected by numerous braided channels, and is north and downstream of the Mississippi Impact Area. This sub-unit is used primarily for direct fire from the small arms ranges and is classified as a non-dud producing impact area. However, unexploded ordnance could be present from past uses.

Public Access. Access into the Allen Army Controlled Fire Area sub-unit is prohibited. Military personnel may request permission to enter this sub-unit, and if permission is granted, EOD personnel must accompany personnel. The Allen Army Controlled Fire Area has been designated as restricted airspace by the Federal Aviation Administration and is closed to all aircraft up to an altitude of 20,000 feet above mean sea level during periods of scheduled firing.

Compatible Uses. The Allen Army Controlled Fire Area sub-unit is suitable for direct and indirect fire weapon training and aerial gunnery exercises. The area is impacted by small arms munitions and may be impacted by dud-producing munitions. This sub-

unit has been classified as a dedicated impact area. Other compatible uses include live fire maneuver training, remote monitoring of natural resources and military impacts.

Other activities not compatible with this sub-unit include most on-the-ground natural resources management, digging without a permit from the Army Corps of Engineers, mineral or vegetative extraction, hunting, fishing, trapping, bird watching, ORVs of any kind, dog sledding, airboats, camping, new construction, easements, and leases.

Ecosystem Management Priorities.

1. Complete ecological land classification and evaluation
2. Complete wetlands survey
3. Complete floristic survey
4. Conduct soil survey
5. Complete survey for threatened and endangered species
6. Survey for nesting raptors
7. Survey neotropical migratory birds
8. Survey small mammals
9. Conduct archaeological survey
10. Conduct water quality surveys
11. Monitor fish and wildlife
12. Monitor military impacts
13. Conduct Section 404 consultation
14. Enforce hunting, trapping, and fishing laws and regulations
15. Enforce trespass

Management Prescription. USARAK will conduct or complete planning-level soil surveys, wetland surveys, floristic surveys, ecological land classification, permafrost distribution and stability, habitat use, forest ecosystem inventory, exotic species surveys, threatened and endangered species surveys, nesting raptor surveys, neotropical landbird surveys, small mammal surveys, baseline water quality database surveys, and archaeological planning-level surveys. USARAK will monitor moose, bison, small game, and wolves using harvest data collection. USARAK will monitor impacts from military exercise, and trespass structures.

The fire protection category for Allen Army Controlled Fire Area sub-unit is Limited. USARAK will conduct habitat management by prescribed burning for multiple species. USARAK will conduct Section 404 consultation for military exercises and obtain a general five-year permit to allow training in low-function wetlands. USARAK will also conduct hunting, trapping, fishing, and trespass enforcement, and manage recreation by controlling access.

***11-4b(2) Mississippi/Washington Impact Area
Sub-unit***

Location. The Mississippi/ Washington Impact Area sub-unit is located on the Delta River, south of the Allen Army Controlled Area. This sub-unit consists of the Mississippi (91) and Washington (92) Impact Areas.

Description. The Mississippi/Washington Impact Area sub-unit occupies 12,202 acres along the Delta River in the central part of Fort Greely. The impact area is used for aerial gunnery, surface-to-air, and direct and indirect firing and is the ground and associated airspace within the training complex used to contain fired or launched ammunition and explosives and resulting fragments, debris, and components from various weapons systems.

Public Access. Access into the Mississippi/Washington Impact Area sub-unit is prohibited. Military personnel may request permission to enter this sub-unit, and if permission is granted, EOD personnel must accompany personnel. The Mississippi/Washington Impact Area has been designated as restricted airspace by the Federal Aviation Administration and is closed to all aircraft up to an altitude of 20,000 feet above mean sea level during periods of scheduled firing.

Compatible Uses. The Mississippi/Washington Impact Area sub-unit is suitable for indirect fire weapon training and aerial gunnery exercises. The area is impacted by small arms and dud-producing munitions. This sub-unit has been classified as a high hazard impact area. Other compatible uses include remote monitoring of natural resources and military impacts, and prescribed burning to reduce fire hazards and improve habitat.

Military training and travel is prohibited in Mississippi/Washington Impact Area. There is hazard of unexploded ordnance in this area. Commanders will ensure that safety personnel maintain surveillance of the area and have the officer-in-charge suspend firing immediately at the approach of an aircraft. Other activities that are not compatible with this sub-unit include any on-the-ground natural resources management, digging in wetlands without a permit from the Army Corps of Engineers, mineral extraction, hunting, fishing, trapping, bird watching, ORVs of any kind, dog sledding, airboats, camping, new construction, easements, and leases.

Ecosystem Management Priorities.

1. Complete ecological land classification and evaluation
2. Complete wetlands survey
3. Complete floristic survey
4. Conduct soil survey
5. Complete survey for threatened and endangered species
6. Survey for nesting raptors
7. Survey neotropical migratory birds
8. Survey small mammals
9. Conduct archaeological survey
10. Conduct water quality surveys
11. Monitor fish and wildlife
12. Monitor military impacts
13. Conduct Section 404 consultation
14. Enforce hunting, trapping, and fishing laws and regulations
15. Enforce trespass

Management Prescription. USARAK will conduct or complete planning-level soil surveys, wetland surveys, floristic surveys, ecological land classification, permafrost distribution and stability, habitat use, forest ecosystem inventory, exotic species surveys, threatened and endangered species surveys, nesting raptor surveys, neotropical landbird surveys, small mammal surveys, baseline water quality database surveys, and archaeological planning-level surveys. USARAK will monitor moose, bison, small game, and wolves using harvest data collection.

USARAK will monitor impacts from military exercise, and trespass structures.

The fire protection category for Mississippi/Washington Impact Area sub-unit is Limited. USARAK will conduct habitat management by prescribed burning for multiple species. USARAK will conduct Section 404 consultation for military exercises and obtain a general five-year permit to allow training in low-function wetlands. USARAK will also conduct hunting, trapping, fishing, and trespass enforcement, and manage recreation by controlling access.

11-4b(3) Delta River South Sub-unit

Location. The Delta River South sub-unit is located on the Delta River, south of Washington Impact Area on the southern portion of Fort Greely. This sub-unit is comprised of the western portion of Donnelly training area, sub-training area 63.

Description. The Delta River South sub-unit occupies 4,120 acres along the Delta River in the southern part of Fort Greely. The Delta riverbed consists of numerous braided channels and riverbed deposits.

Public Access. Public access is allowed for recreation, subject to safety restrictions and military security, when access does not impair the military mission, as determined by the installation commander.

Compatible Uses. The Delta River South sub-unit is suitable for winter training and travel but is not suitable for year-round military maneuver exercises.

Other compatible uses include natural resource management, habitat improvement, mineral or vegetative resource extraction, hunting, fishing, trapping, birdwatching, hiking, skiing, dog sledding, and ORV use. Activities that are not compatible with the Delta River South sub-unit, include digging without a permit, and any permanent non-military structures, easements or leases.

Ecosystem Management Priorities.

1. Complete ecological land classification and evaluation
2. Complete wetlands survey
3. Complete floristic survey

4. Complete survey for threatened and endangered species
5. Conduct soil survey
6. Conduct Section 404 consultation
7. Conduct archaeological survey
8. Manage wetland vegetation
9. Manage special interest areas
10. Survey for nesting raptors
11. Survey neotropical migratory birds
12. Survey small mammals
13. Enforce hunting, trapping, and fishing laws and regulations
14. Update trespass cabin inventory
15. Monitor fish and wildlife
16. Conduct water quality surveys
17. Monitor military impacts
18. Monitor recreational impacts
19. Manage recreational use and impacts
20. Prevent and suppress undesirable wildfires
21. Manage wildlife habitat
22. Manage wildlife populations
23. Implement natural and cultural resources education and awareness programs
24. Implement hunting, trapping, and fishing awareness programs

Management Prescription. USARAK will conduct or complete planning-level soil surveys, wetland surveys, floristic surveys, ecological land classification, permafrost distribution and stability, habitat use, exotic species surveys, threatened and endangered species surveys, nesting raptor surveys, neotropical landbird surveys, small mammal surveys, baseline water quality database surveys, archaeological planning-level surveys, recreational surveys to include trails on the east side of the Delta River, fishing access, and cabin surveys. USARAK will monitor moose, bison, small game, neotropical migratory birds, wolves and the Fortymile caribou herd if the herd comes onto Fort Greely using harvest data collection. USARAK will conduct LCTA monitoring, water quality monitoring, and will monitor impacts from military exercise, trespass structures, and recreational use.

The fire protection category for the Delta River South sub-unit is Full. The sandhill crane roosting area (Figure 8-2(c)) will be managed as a special interest area. Hunting, fishing, and trapping regulations will manage fish and wildlife populations. USARAK will conduct Section 404 consultation for military exercises and obtain a general five-year permit to allow training in low-function wetlands. USARAK will manage wetlands and repair wetland damage when necessary as mitigation for the general permit.

USARAK will conduct natural and cultural resources education, and hunting, trapping, and fishing awareness programs. USARAK will also conduct hunting, trapping, fishing, and trespass enforcement, and manage recreation by controlling access and enhancing fishing opportunities.

11-4c Greely East Ecological Management Unit

Description. The Greely East ecological management unit consists of all of Fort Greely east of the Delta River, except for the area commonly known as the keyhole, which is private land that surrounds the Richardson Highway.

Ecosystem Management Objectives. Manage the Greely/Jarvis West and Bolio/Donnelly sub-units as Full management areas. Manage the Jarvis NE and Wills Range Complex sub-units as Modified management areas. Manage the Texas Range sub-unit as a Limited management area.

11-4c(1) Greely/Jarvis West Sub-unit

Location. Greely/Jarvis West sub-unit is located east of the Richardson Highway and west of Jarvis Creek. This sub-unit encompasses Greely, Jarvis West and Ober Training Areas (sub-training areas 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, and 34).

Description. The Greely/Jarvis West sub-unit contains 25,622 acres of rolling terrain. This sub-unit receives the most maneuver training on Fort Greely.

Public Access. Public access is allowed for recreation, subject to safety restrictions and military security, when access does not impair the military mission, as determined by the installation commander.

Compatible Uses. The Greely/Jarvis West sub-unit is suitable for small arms, platoon- to brigade-sized exercises, company-sized live-fire exercises, road marches, and bivouacs. This sub-unit is primarily used for large-scale military training exercises, airborne drops, and winter bivouacs. The recommended time for military activities in low areas for mechanized vehicles is between freeze-up and spring break-up. Donnelly, Bear, and Fox Drop Zones and Donnelly Assault Air Strip will sustain year-round use. Until 2002, this sub-unit will include urban areas including the cantonment area. Urban areas are the only areas off-limits to maneuver training.

Other compatible uses include natural resource management, habitat improvement, mineral or vegetative resource extraction, hunting, fishing, trapping, birdwatching, hiking, skiing, dog sledding, and ORV use. Activities that are not compatible with the Greely/Jarvis West sub-unit include digging without a permit, and any permanent non-military structures, easements, or leases.

Ecosystem Management Priorities.

1. Complete ecological land classification and evaluation
2. Complete wetlands survey
3. Complete floristic survey
4. Complete survey for threatened and endangered species
5. Conduct archaeological survey
6. Conduct hunting, trapping, and fishing awareness programs
7. Conduct Section 404 consultation
8. Manage wetland vegetation
9. Conduct soil survey
10. Conduct LCTA monitoring
11. Conduct water quality surveys
12. Monitor fish and wildlife
13. Conduct BASH
14. Conduct pest management
15. Monitor military exercises
16. Update trespass cabin inventory
17. Monitor recreational impacts
18. Inventory the forest ecosystem

19. Manage the forest ecosystem
20. Survey for nesting raptors
21. Survey neotropical migratory birds
22. Survey small mammals
23. Prevent and suppress undesirable wildfires
24. Enforce hunting, trapping, and fishing laws and regulations
25. Implement the Watchable Wildlife program
26. Implement natural and cultural resource education and awareness programs
27. Manage recreational use and impacts
28. Manage wildlife habitat
29. Manage wildlife populations
30. Control erosion
31. Conduct LRAM projects

Management Prescription. USARAK will conduct or complete planning-level soil surveys, wetland surveys, floristic surveys, ecological land classification, permafrost distribution and stability, habitat use, forest ecosystem inventory, exotic species surveys, threatened and endangered species surveys, nesting raptor surveys, neotropical landbird surveys, small mammal surveys, baseline water quality database surveys, archaeological planning-level surveys, recreational surveys to include fishing access, and cabin surveys. USARAK will monitor moose, bison, small game, neotropical migratory birds, wolves and the Fortymile caribou herd (if the herd comes onto Fort Greely), using harvest data collection. USARAK will conduct LCTA and water quality monitoring, and will monitor impacts from military exercise, trespass structures, and recreational use.

The fire protection category for the Greely/Jarvis West sub-unit is Full. USARAK will manage the forest ecosystem by allowing timber removal for military mission support, and forest disease/insect prevention. USARAK will create moose habitat, conduct fish habitat improvement, conduct prescribed burning for multiple species forage and habitat, and conduct bison habitat enhancement. Fish and wildlife population management will include hunting, fishing, and trapping management, and fish stocking.

USARAK will conduct Section 404 consultation for military exercises and obtain a general five-year permit to allow training in low-function wetlands. USARAK will manage wetlands and repair wetland damage when necessary as mitigation for the general permit. USARAK will conduct erosion control and implement LRAM projects as they are identified in this sub-unit.

USARAK will conduct natural and cultural resources education, and hunting, trapping, and fishing awareness programs. Wildlife viewing areas will be constructed. USARAK will also conduct hunting, trapping, fishing, and trespass enforcement, and manage recreation by controlling access, managing backpacking and hiking areas, managing ORV areas, and enhancing fishing opportunities.

11-4c(2) Jarvis North-East/Butch/Granite Sub-unit

Location. The Jarvis Northeast/ Butch/Granite sub-unit is located east of Jarvis Creek on Fort Greely. This sub-unit consists of Jarvis North, Jarvis East, Butch, and Granite Training Areas (sub-training areas 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11).

Description. The Jarvis North-East/Butch/Granite sub-unit is 39,325 acres of rolling terrain with some lakes and is bisected by streams, especially in the south. The 33-Mile Loop road also bisects this sub-unit. This sub-unit contains Buffalo, Eddy and Butch Drop Zones. Jarvis North Training Area has good accessibility to the Main Post by gravel road and the Richardson Highway. It has an old gravelly creek bed running north south through the middle that is highly suitable for bivouacking. It is currently used during most large exercises as a support battalion bivouac. Training Area 2 can also be reached by fording Jarvis Creek at Bear Crossing. It contains several small, wooded bivouac areas next to Buffalo Drop Zone and others along Jarvis Creek (winter access only). It is a good location for training associated with drop zone activities. Buffalo Drop Zone is cleared, and kept mowed or hydro-axed on a regular basis. TA 4 contains a large, open bivouac area in the southwest and a small wooded one in the northeast corner. TA 5 is accessible by road as far as Eddy DZ. Beyond Eddy DZ, the road is often muddy and impassable. Dirt tracks through TA 5 are impassable in summer, but the area could be used for maneuvering or bivouacking in winter. Much of the area is classified as wetland. Eddy DZ is a cleared

wetland and is not fully usable in summer. During winter, Eddy DZ can be used for drop zone activities as well as maneuvering. Forest in the west and wetland in the east characterize the rest of TA 6. The TA has a network of trails, some of which are passable in summer, the rest are winter trails. TA 7 access is limited to 33-Mile Loop Road. From the north, the road is muddy and difficult for wheeled vehicles in summer, and from the south Jarvis Creek must be forded at 12-Mile Crossing. This area is mostly wetland, and would be suitable for maneuver and bivouac in winter.

Public Access. Public access is allowed for recreation, subject to safety restrictions and military security, when access does not impair the military mission, as determined by the installation commander.

Compatible Uses. The Jarvis North-East/Butch/Granite sub-unit is suitable for small arms, platoon-to brigade-sized exercises, company-sized live-fire exercises, road marches, and bivouacs. This sub-unit is primarily used for large-scale military training exercises, airborne drops, and winter bivouacs. The recommended time for military activities in low areas for mechanized vehicles is between freeze-up and spring break-up. Buffalo Drop Zone will sustain year-round use. Eddy and Butch Drop Zones will sustain only winter use.

Other compatible uses include natural resource management, habitat improvement, mineral or vegetative resource extraction, hunting, fishing, trapping, birdwatching, hiking, skiing, dog sledding, and ORV use. Activities not compatible with the Jarvis North-East/Butch/Granite sub-unit, include digging without a permit, and any permanent non-military structures, easements or leases.

Ecosystem Management Priorities.

1. Complete ecological land classification and evaluation
2. Complete wetlands survey
3. Complete floristic survey
4. Complete survey for threatened and endangered species
5. Conduct archaeological survey
6. Conduct Section 404 consultation
7. Manage wetland vegetation

8. Conduct soil survey
9. Inventory the forest ecosystem
10. Survey for nesting raptors
11. Survey neotropical migratory birds
12. Survey small mammals
13. Enforce hunting, trapping, and fishing laws and regulations
14. Monitor fish and wildlife
15. Conduct LCTA monitoring
16. Control erosion
17. Implement LRAM projects
18. Conduct water quality surveys
19. Monitor military exercises
20. Conduct hunting, trapping, and fishing awareness programs
21. Update trespass cabins inventory
22. Monitor recreational impacts
23. Implement natural and cultural resources education and awareness programs
24. Prevent and suppress undesirable wildfires
25. Manage the forest ecosystem
26. Manage recreational use and impacts
27. Manage fish and wildlife habitat
28. Manage fish and wildlife populations
29. Survey forest fuels

Management Prescription. USARAK will conduct or complete planning-level soil surveys, wetland surveys, floristic surveys, ecological land classification, permafrost distribution and stability, habitat use, forest ecosystem inventory, exotic species surveys, threatened and endangered species surveys, nesting raptor surveys, neotropical landbird surveys, small mammal surveys, baseline water quality database surveys, archaeological planning-level surveys, recreational surveys to include trails on the east side of the Delta River, fishing access, and cabin surveys. USARAK will monitor moose, bison, small game, neotropical migratory birds, wolves and the Fortymile caribou herd (if the herd comes onto Fort Greely), using harvest data collection. USARAK will conduct LCTA monitoring, water quality moni-

toring, and will monitor impacts from military exercise, trespass structures, and recreational use.

The fire protection category for the Jarvis NE/Butch/Granite sub-unit is Full. The Delta bison area will be managed as a special interest area. USARAK will manage the forest ecosystem by allowing timber removal for military mission support, timber stand improvement, forest regeneration, timber management, and forest disease/insect prevention. USARAK will create moose habitat, build artificial nests, conduct fish habitat improvement, conduct prescribed burning for multiple species forage and habitat, and conduct bison habitat enhancement. Fish and wildlife populations will be managed by hunting, fishing, and trapping regulations; fish stocking; and BASH.

USARAK will conduct Section 404 consultation for military exercises and obtain a general five-year permit to allow training in low-function wetlands. USARAK will manage wetlands and repair wetland damage when necessary as mitigation for the general permit. USARAK will conduct erosion control and implement LRAM projects as they are identified in this sub-unit.

USARAK will conduct natural and cultural resources education, and hunting, trapping, and fishing awareness programs. Wildlife viewing areas, such as the bison viewing area, will be constructed. USARAK will also conduct hunting, trapping, fishing, and trespass enforcement, and manage recreation by controlling access, managing backpacking and hiking areas, managing ORV areas, and enhancing fishing opportunities

11-4c(3) Bolio/Donnelly Sub-unit

Location. The Bolio/Donnelly sub-unit is located west of the Richardson Highway and east of the Delta River. This sub-unit includes Bolio, Donnelly, and OP Training Areas (sub-training areas 48, 49, 50, 51, 52, 53, 54 55, 56, 57, 58, 59, 60, 61, 62, and 63).

Description. The Bolio/Donnelly sub-unit contains upland terrain with numerous lakes and intermittent wetlands. TA 51 is used exclusively by the CRTC, and is off-limits to other personnel. TA 52 contains OPs 7 and 7A, and TA 53 contains OPs 8 and 9, which are mortar firing points. Artillery fir-

ing points Sally and Audrey are located along Meadows Road. TA 56 is almost entirely wetland. The Bolio Test Site is a small complex of buildings used by CRTC along the east boundary. Meadows Road, a road from TA 57, or Twin Lakes Road all provide access to the Bolio Test Site. TA 57 has several large lakes used recreationally for fishing. It also has FPs Mark and Bo-Whale, and possibly some that are not mapped. The area has good accessibility from Meadows and Twin Lakes Roads in addition to several trails in good condition. Portions of the TA have been burned and now contain scrubby aspen. TA 58 has good accessibility from Windy Ridge and Meadows Roads. FPs Mt. Hayes and Big Lake are located in TA 58, which contains other small areas used as FPs, but not shown on the map. This area is lowland scrubby brush, with about half the area classified as wetlands. TA 59 has good accessibility by the Old Richardson Highway (gravel), Windy Ridge Road, and a network of trails. The eastern portion has a steep ridge running north south. The rest of the TA has numerous lakes interspersed with hills with low vegetation. Wetlands are confined to lake edges for the most part. Many of these lakes are stocked by ADF&G and are used recreationally. Texas and Washington Ranges make up most of TA 60, and are used extensively by the CRTC for testing. OPs 10, 10A, and 30 overlook the Delta River. There are numerous lakes and wetlands in the north and west portions. Parts of TA 61 have good accessibility from the Richardson Highway by way of Dome Road and the Old Richardson Highway. It has numerous scattered wetlands, lakes and streams. The Trans-Alaska Pipeline runs north south along the western edge of the TA, and is elevated. TA 62 has good accessibility directly from the Richardson Highway, and by way of Dome Road, which forms the boundary between TAs 61 and 62. Donnelly Dome is the outstanding feature in this training area. There are pullouts along the highway with foot trails leading to the top of the Dome. Smaller military units conducting physical training use the Dome. Wetlands are scattered throughout the lowland portions of the TA and the Trans-Alaska Pipeline runs elevated, north south along the western edge of the TA. TA 63 rises up steeply from the Delta River, and is heavily forested in places. The area is somewhat accessible by a road that runs north from the Richardson Highway, and becomes the boundary between TAs 62 and 63. OPs 11 and 12 overlook

the Delta River and are accessed from the north by way of Meadows Road. Part of the northwest corner of TA 63 contains the Washington Range and is used by the CRTC for testing. Small areas in the northeast corner are delineated as wetlands.

Public Access. Public access is allowed for recreation, subject to safety restrictions and military security, when access does not impair the military mission, as determined by the installation commander. Access is not permitted to unauthorized personnel in Training Areas 51 and 52.

Compatible Uses. The Bolio/Donnelly sub-unit is suitable for indirect fire weapons, aerial gunnery, small arms, platoon- to brigade-sized exercises, company-sized live-fire exercises, road marches, and bivouacs. This sub-unit is primarily used for large-scale military training exercises, artillery firing, and winter bivouacs. The recommended time for mechanized vehicle use in low areas is between freeze-up and spring break-up.

Other compatible uses (excluding Training Areas 51 and 52) include natural resource management, habitat improvement, mineral or vegetative resource extraction, hunting, fishing, trapping, birdwatching, hiking, skiing, dog sledding, and ORV use. Activities that are not compatible with the Bolio/Donnelly sub-unit include digging without a permit, and any permanent non-military structures, easements or leases.

Ecosystem Management Priorities.

1. Complete ecological land classification and evaluation
2. Complete wetlands survey
3. Complete floristic survey
4. Complete survey for threatened and endangered species
5. Conduct archaeological survey
6. Conduct Section 404 consultation
7. Manage wetland vegetation
8. Conduct soil survey
9. Inventory the forest ecosystem
10. Survey for nesting raptors
11. Survey neotropical migratory birds
12. Survey small mammals

13. Enforce hunting, trapping, and fishing laws and regulations
14. Monitor fish and wildlife
15. Conduct LCTA monitoring
16. Control erosion
17. Conduct LRAM projects
18. Conduct water quality surveys
19. Monitor military exercises
20. Manage special interest areas
21. Conduct hunting, trapping, and fishing awareness programs
22. Update trespass cabins inventory
23. Monitor recreational impacts
24. Implement the Watchable Wildlife program
25. Implement natural and cultural resources education and awareness programs
26. Prevent and suppress undesirable wildfires
27. Manage the forest ecosystem
28. Manage recreational use and impacts
29. Manage fish and wildlife habitat
30. Manage fish and wildlife populations
31. Survey forest fuels

Management Prescription. USARAK will conduct or complete planning-level soil surveys, wetland surveys, floristic surveys, ecological land classification, permafrost distribution and stability, habitat use, forest ecosystem inventory, exotic species surveys, threatened and endangered species surveys, nesting raptor surveys, neotropical landbird surveys, small mammal surveys, baseline water quality database surveys, archaeological planning-level surveys, recreational surveys to include trails on the east side of the Delta River, fishing access, and cabin surveys. USARAK will monitor moose, bison, small game, neotropical migratory birds, wolves and the Fortymile caribou herd, if the herd comes onto Fort Greely, using harvest data collection. USARAK will conduct LCTA and water quality monitoring, and will monitor impacts from military exercise, trespass structures, and recreational use.

The fire protection category for the Bolio/Donnelly sub-unit is Full. The Delta bison area will be managed as a special interest area. USARAK will man-

age the forest ecosystem by allowing timber removal for military mission support, timber stand improvement, forest regeneration, timber management, and forest disease/insect prevention. USARAK will create moose habitat, build artificial nests, conduct fish habitat improvement, conduct prescribed burning for multiple species forage and habitat, and conduct bison habitat enhancement. Fish and wildlife populations will be managed by hunting, fishing, and trapping regulations; fish stocking; and BASH.

USARAK will conduct Section 404 consultation for military exercises and obtain a general five-year permit to allow training in low-function wetlands. USARAK will manage wetlands and repair wetland damage when necessary as mitigation for the general permit. USARAK will conduct erosion control and implement LRAM projects as they are identified in this sub-unit.

USARAK will conduct natural and cultural resources education, and hunting, trapping, and fishing awareness programs. Wildlife viewing areas, such as the bison viewing area, will be constructed. USARAK will also conduct hunting, trapping, fishing, and trespass enforcement, and manage recreation by controlling access, managing backpacking and hiking areas, managing ORV areas, and enhancing fishing opportunities.

11-4c(4) Texas Range Sub-unit

Location. The Texas Range sub-unit is located directly east of the Delta River on southern Fort Greely. This sub-unit is made up of Texas and Washington Ranges in parts of sub-training areas 60 and 63 in Donnelly training area.

Description. The Texas Range sub-unit contains 6,990 acres of rolling, partially wooded terrain. There are lakes and wetlands in this sub-unit. This sub-unit also contains OPs 10, 10A, 30 and H. These ranges are used by the CRTC and are off-limits to unauthorized military and civilian personnel.

Public Access. Access into the Texas Range sub-unit is prohibited. The Texas Range has been designated as restricted airspace by the Federal Aviation Administration and is closed to all aircraft up to an altitude of 20,000 feet above mean sea level during periods of scheduled firing.

Compatible Uses. The Texas Range sub-unit is suitable for direct and indirect fire weapon training and aerial gunnery exercises. Small arms munitions impact the area. This sub-unit has been classified for small arms, as a non-dud producing impact area. Other compatible uses include live fire maneuver training, remote monitoring of natural resources and military impacts, and limited on-the-ground natural resources management.

Other activities that are not compatible with this sub-unit include most on-the-ground natural resources management, digging without a permit from the Army Corps of Engineers, mineral or vegetative extraction, hunting, fishing, trapping, bird watching, ORVs of any kind, dog sledding, airboats, camping, new construction, easements, and leases.

Ecosystem Management Priorities.

1. Complete ecological land classification and evaluation
2. Complete wetlands survey
3. Complete floristic survey
4. Complete survey for threatened and endangered species
5. Conduct soil survey
6. Conduct Section 404 consultation
7. Survey for nesting raptors
8. Survey neotropical migratory birds
9. Survey small mammals
10. Conduct archaeological survey
11. Monitor fish and wildlife
12. Prevent and suppress undesirable wildfires
13. Manage special interest areas
14. Manage wildlife populations
15. Enforce hunting, trapping, and fishing laws and regulations
16. Enforce trespass

Management Prescription. USARAK will conduct or complete planning-level soil surveys, wetland surveys, floristic surveys, ecological land classification, permafrost distribution and stability, habitat use, forest ecosystem inventory, exotic species surveys, threatened and endangered species surveys, nesting raptor surveys, neotropical landbird surveys,

small mammal surveys, baseline water quality database surveys, archaeological planning-level surveys, recreational surveys to include trails on the east side of the Delta River, and fishing access, and cabin surveys. USARAK will monitor moose, bison, small game, neotropical migratory birds, wolves and the Fortymile caribou herd, if the herd comes onto Fort Greely using harvest data collection. USARAK will conduct LCTA and water quality monitoring, and will monitor impacts from military exercise, trespass structures, and recreational use.

The fire protection category for Texas Range sub-unit is Full. Fish and wildlife populations will be managed by hunting, fishing, and trapping regulations; fish stocking; and BASH. USARAK will conduct Section 404 consultation for military exercises and obtain a general five-year permit to allow training in low-function wetlands. USARAK will manage wetlands and repair wetland damage when necessary as mitigation for the general permit. USARAK will also conduct hunting, trapping, fishing, and trespass enforcement.

11-4c(5) Wills Range Sub-unit

Location. Wills Range sub-unit is located directly east of the Delta River on north Fort Greely, and is part of the Allen Army Controlled Fire Area. This sub-unit includes small arms ranges 41, 42, 43, 44, 45, 46, and 47.

Description. The Wills Range Complex occupies 2291 acres of the Allen Army Controlled Fire Area on northern Fort Greely. This sub-unit is primarily on a low flood plain of the Delta River and contains most of the small arms ranges on Fort Greely.

Public Access. Access into the Wills Range Complex sub-unit is prohibited. Military personnel may request permission to enter this sub-unit, and if permission is granted, EOD personnel must accompany personnel. The Wills Range Complex has been designated as restricted airspace by the Federal Aviation Administration and is closed to all aircraft up to an altitude of 20,000 feet above mean sea level during periods of scheduled firing.

Compatible Uses. The Wills Range sub-unit is suitable for direct and indirect fire weapon training and aerial gunnery exercises. Small arms munitions impact the area. This sub-unit has been classified for

small arms, as a non-dud producing impact area. Other compatible uses include live fire maneuver training, remote monitoring of natural resources and military impacts, and limited on-the-ground natural resources management.

Other activities that are not compatible with this sub-unit include most on-the-ground natural resources management, digging without a permit from the Army Corps of Engineers, mineral or vegetative extraction, hunting, fishing, trapping, bird watching, ORVs of any kind, dog sledding, airboats, camping, new construction, easements, and leases.

Ecosystem Management Priorities.

1. Complete ecological land classification and evaluation
2. Complete wetlands survey
3. Complete floristic survey
4. Complete survey for threatened and endangered species
5. Conduct soil survey
6. Conduct archaeological survey
7. Conduct LCTA monitoring
8. Conduct water quality surveys
9. Conduct Section 404 consultation
10. Survey for nesting raptors
11. Survey neotropical migratory birds
12. Survey small mammals
13. Implement LRAM projects
14. Control erosion
15. Monitor military impacts
16. Monitor fish and wildlife
17. Prevent and suppress undesirable wildfires
18. Manage wildlife habitat

19. Manage wildlife populations
20. Enforce hunting, trapping, and fishing laws and regulations
21. Enforce trespass
22. Survey forest fuels
23. Implement natural and cultural resources education and awareness

Management Prescription. USARAK will conduct or complete planning-level soil surveys, wetland surveys, floristic surveys, ecological land classification, permafrost distribution and stability, habitat use, forest ecosystem inventory, exotic species surveys, threatened and endangered species surveys, nesting raptor surveys, neotropical landbird surveys, small mammal surveys, baseline water quality database surveys, archaeological planning-level surveys, recreational surveys to include trails on the east side of the Delta River, and fishing access, and cabin surveys. USARAK will monitor moose, bison, small game, neotropical migratory birds, wolves and the Fortymile caribou herd if the herd comes onto Fort Greely, using harvest data collection. USARAK will conduct LCTA monitoring, water quality monitoring, and will monitor impacts from military exercise, trespass structures, and recreational use.

The fire protection category for Texas Range sub-unit is Full. Hunting, fishing, and trapping regulations will manage fish and wildlife populations, fish stocking, and Bird Air-Strike Hazard (BASH). USARAK will conduct Section 404 consultation for military exercises and obtain a general five-year permit to allow training in low-function wetlands. USARAK will manage wetlands and repair wetland damage when necessary as mitigation for the general permit. USARAK will also conduct hunting, trapping, fishing, and trespass enforcement.